AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of the Claims:

1 – 8. (Canceled)

9. (Previously Presented) A method for monitoring and controlling wavelengths of an optical transmitter module or optical transmitter and receiver module internally including: a measurement portion for measuring a laser diode temperature and bias current or only the temperature; a storage portion in which the relationship between the temperature, bias current and wavelengths or between the temperature and wavelengths is stored; a central controlling portion for controlling the measurement portion and the storage portion; and a temperature adjusting portion composed of a temperature controlling device, wherein the method comprising steps of:

calculating wavelength information on the basis of the temperature and bias current or only the temperature measured by the measurement portion, and the relationship between the laser diode temperature and wavelengths or between the laser diode temperature, bias current and wavelengths stored in the storage portion;

comparing predetermined minimum and maximum threshold values, with the wavelength information calculated in the step of calculating wavelength information;

raising the internal temperature by the temperature adjusting portion when the result of the comparing step is smaller than or equal to the minimum threshold value; and

lowering the internal temperature by the temperature adjusting portion when the result of the comparing step is larger than or equal to the maximum threshold value.

10. (Canceled)

11. (Currently Amended) The method for monitoring and controlling wavelengths according to Claim 9, wherein[[,]]

the step of calculating wavelength information uses the temperature and bias current or only the temperature measured by the measuring portion, and the relationship

between the laser diode temperature and wavelengths or between the laser diode temperature, bias current and wavelengths stored in the storage portion, and calculates wavelength information by obtaining λc, ic, a, and b in Equation (1) or λc and a in Equation (2);

$$\lambda = \lambda c + aT + b\,(i - ic) \qquad \text{Equation (1)}$$

$$\lambda = \lambda c + aT \qquad \text{Equation (2)}$$

where **λc** is a wavelength at temperature 0°C and threshold current value **ic**, **a** and **b** are coefficients, **T** is a temperature, and **i** is a bias current.

12. (Previously Presented) The method for monitoring and controlling wavelengths according to Claim 9, wherein

the step of calculating wavelength information selects a smaller temperature value **T1** than the measured temperature **Tmes**, a larger temperature value **T2** than the measured temperature **Tmes**, a smaller bias current value **I1** than the measured bias current **Imes** and a larger bias current value **I2** than the bias current value **Imes** by using the temperature and bias current measured by the measurement portion, and the relationship between the laser diode temperature, bias current and wavelengths stored in the storage portion; extracts four wavelengths **(λ11 = λ(I1, T1), λ21 = λ(I2, T1), λ12 = λ(I1, T2))**, and **λ22 = λ(I2, T2)** corresponding thereto; and calculates the wavelength **λmes1 = λ(Imes, T1)** at the measured bias current **Imes** by linearly interpolating the bias current dependency of the wavelengths at temperature **T1** using **λ11** and **λ21**; calculates

the wavelength **λmes2 = (Imes, T2)** at the measured bias current **Imes** by linearly interpolating the bias current dependency of the wavelength at temperature **T2** using **λ12** and **λ22**; and calculates the wavelength **λmes = (Imes, Tmes)** at the measured bias current **Imes** and temperature **Tmes** by linearly interpolating the temperature dependency of the wavelength at the measured bias current **Imes** using the calculated **λmes1** and **λmes2.**

13. (Previously Presented) The method for monitoring and controlling wavelengths according to Claim 9, wherein

the step of calculating wavelength information selects a smaller temperature **T1** than the measured temperature **Tmes**, a larger temperature **T2** than the measured temperature **Tmes**, a smaller bias current **I1** than the measured bias current **Imes**, a larger bias current **I2** than the measured bias current **Imes**, and a bias current **I3** differing from the bias currents **I1** and **I2** by using the temperature and bias current measured by the measurement portion and the relationships between the laser diode temperature, bias current and wavelengths stored in the storage portion; extracts six wavelengths **(λ11 = λ(I1 , T1), λ21 = λ(I2, T1), λ12 = λ(I1, T2), λ22 = λ(I2, T2), λ31 = λ(I3, T1))**, and **λ32 = λ(I3, T2)** corresponding thereto; approximates the bias current dependency of the wavelength at the temperature **T1** by a quadratic function using **λ11, λ21** and **λ31**; approximates the bias current dependency of the wavelength at the temperature **T2** by a quadratic function using **λ12, λ22** and **λ32**; and calculates the wavelength **λmes = λ(Imes, Tmes)** at the measured bias current **Imes** and temperature **Tmes.**

14. (Previously Presented) The method for monitoring and controlling wavelengths according to Claim 9, wherein the step of calculating wavelength information extracts a wavelength by causing the measured temperature and bias current to correspond to any one of the temperatures stored in matrices indicating the

relationship between the laser diode temperature and wavelengths or between the laser diode temperature, bias current and wavelengths stored in the storage portion.

15. (Canceled)

16. (Canceled)

17. (Canceled)

18. (Canceled)

19. (Currently Amended) The method for monitoring and controlling wavelengths according to any one of Claims 9 , 11, 12, 13, or 14, the method comprising, before the step of calculating wavelength information, steps of:

comparing predetermined minimum and maximum threshold values, with the optical output measured by the measurement portion;

raising the bias current by a laser diode drive current controlling circuit when the result of the comparing step is smaller than or equal to the minimum value of the threshold values; and

lowering the bias current by the laser diode drive current controlling circuit when the result of the comparing step is larger than or equal to the maximum value of the threshold values.